Item No: RWL 109 vii.: **Phase 2 Definition, Scope of Work and Execution Controls**

ITEM DESCRIPTION:

No. 8 Flare Phase 2 was designed to commission the Flare in preparation to bring hydrocarbon containing process equipment (i.e., process units: Crude unit, Vacuum Unit, Coker) to nitrogen (inert gas) condition during refinery decommissioning stages, i.e. (refer to summary resolution for details);

i. Cold Circulation and De-inventory of hydrocarbon liquids,
ii. Warm Circulation and De-inventory of liquids,
iii. De- gas hydrocarbon to Flare, and
iv. Nitrogen Blanket each process unit.

Note:

- OSBL – (Outside Battery Limits decommissioning) and/ or storage run downs to be managed after completion of the Phase 2, process units decommissioning. Sour system units to be managed in Phase 3 decommissioning.

SUMMARY RESOLUTION:

A. OVERALL SCOPE.

The No. 8 Flare Phase 2 consists of lining up the facility flare header interconnecting the process units and decommissioning the unit to nitrogen condition stage as follows.

1. De-blinding the Flare KO Drum for normal operation.

2. Applying the No 8 Flare normal start procedure after turnaround.

3. Lining up the individual process unit to the main flare header to the flare.

4. Applying the individual unit's shutdown procedures titled "Unit shutdown for turnaround"
   Notes:
   i. The procedure to be used will be signed off on every step by the operators and supervisor after a set of steps, as indicated in the procedure.
   ii. Not all steps within the procedure will be applied or as the process equipment will not be opened to for required maintenance work.
   iii. Cold Circulation only may begin before the No. 8 Flare is back in service.

5. Air monitoring "CEMS" will be in service throughout the entire process

6. Offsite SO_2 station (5) are operational and will continue to be operational using EPA monitors at the outset of Phase 2, to be replaced by Limetree monitors.

7. On site perimeter portable analyzer will continue to be in place during the process of bringing the unit to nitrogen conditions.

8. Prior to commencing Phase 2, the Gas Turbines will be kept in service with C3 or diesel fuel supply, to support the refinery and terminal activities: the fired boiler no. 8 and 9 support equipment and associated boiler feed water system will be put in service to assure sufficient steam for process units steam out and operation of steam drivers (i.e., No. 4 Platformer compressors and steam for the Flare operation.

Phase 2 Definition, Scope of Work and Execution Controls (cont.)
SUMMARY RESOLUTION: (cont.)

B. REFINERY DECOMMISSIONING STAGES – HYDROCARBON PROCESS UNIT (ISBL)*

1. **Cold Circulation and De-inventory of liquids**
   - **a.** Dilute heavy oils with light oils as required to facilitate flush
   - **b.** Circulate oil to mix
   - **c.** Pump out to storage tanks or to another process unit

2. **Warm Circulation and De-inventory of liquids** – Flare required to vaporize propane
   - a. Light furnace pilots and heat to 200-250F.
   - b. Circulate to mix.
   - c. Pump out to storage tanks or another process unit.

3. **De-gas to Flare** – See Phase 2 Flare Plan
   - a. De-pressure Unit (typically 20 psig down to 5 psig) to Flare.
   - b. Steam Unit to Flare (medium pressure steam).
   - c. Purge Unit with Nitrogen to Flare.

4. **N2 Blanket Process Unit**
   - a. Vessels, piping, exchangers, pumps, and compressors
   - b. 10 psig typical N_2 pressure

*ISBL = Inside Battery Limits.
Excludes interconnecting piping between process units and/or storage.

NOTE: Item B. addresses hydrocarbon containing units; process equipment such as amine, acid gas systems anhydrous ammonia and sour water to be handled under a different plan. Likewise, OSBL is to be handled under a different plan.

Phase 2 Definition, Scope of Work and Execution Controls (cont.)
SUMMARY RESOLUTION: (cont.)

C. FLARE 8 PHASE 2 EXECUTION CONTROLS

1. **Prerequisites Completed Prior to Phase 2**
    a. Phase 1 Complete and Verified.
    b. Approval obtained by EPA.

2. **Complete Flare 8 Startup according to Procedure, including:**
    a. Continuous Emissions Monitors (CEMs) in service.
    b. Steam to flare tip(s).
    c. Sweep gas to flare header(s).
    d. Supplemental propane to flare tip (for heating value).
    e. H2S scavenger injection system at Flare 8.

3. **Maintain all Flare Process Unit Battery Limit Valves Closed**

4. **Open one Flare Battery Limit Valve at a time**
    a. Slowly de-pressure Process Unit through single selected valve.
    b. Field Operator remains in position.
    c. Maintain constant radio contact with:
        i. Operator at manual valve,
        ii. Console Operator at Flare, and
        iii. Supervisor.

5. **Monitor Flare 8 CEMS**
    a. Ensure flare sweep gas is fully operational.
    b. Confirm function of H_2S scavenger system at Flare 8.
    c. Close valve if CEMS shows above internal control threshold of 80 ppm H_2S.

6. **Operate Ambient Monitors**

7. **Repeat steps 4 -5 through**:
    a. De-pressure,
    b. Steam-out,
    c. N_2 Purge.